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GLOSSARY OF ACRONYMS

ANSI	- AMERICAN NATIONAL STANDARDS INSTITUTE
APR	- AIR PURIFYING RESPIRATOR
ACGIH	- AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS
CFR	- CODE OF FEDERAL REGULATIONS
CGI	- COMBUSTIBLE GAS INDICATOR
CLEAN ZONE	- SUPPORT ZONE
CSEP	- CONFINED SPACE ENTRY PERMIT
DECON	- DECONTAMINATION
HNU-PID	- HNU PHOTOIONIZATION DETECTOR
HOT ZONE	- EXCLUSION ZONE
IAW	- IN ACCORDANCE WITH
IDLH	- IMMEDIATELY DANGEROUS TO LIFE & HEALTH
MREM/hr	- MILLI-ROENTGENS EQUIVALENT IN MAN PER HOUR
NIOSH	- NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY & HEALTH
OSHA	- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION LIMIT
OVA	- ORGANIC VAPOR ANALYZER
PAPR	- POWERED AIR PURIFYING RESPIRATORS
PEL	- PERMISSIBLE EXPOSURE LIMIT
PPM	- PARTS PER MILLION
RM	- PROJECT MANAGER
SCBA	- SELF-CONTAINED BREATHING APPARATUS
SOP	- STANDARD OPERATING PROCEDURE
SPCC	- SPILL PREVENTION CONTROLS & COUNTERMEASURES
TLV	- THRESHOLD LIMIT VALUE
TWA	- TIME WEIGHTED AVERAGE
U.S. EPA	- U.S. ENVIRONMENTAL PROTECTION AGENCY

1.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed for the M & H Zinc Site, to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes. The procedures and guidelines contained herein were based upon the best available information at the time of the plan's preparation. Specific requirements will be revised when new information is received or conditions change. A written amendment will document all changes made to the plan. Any amendments to this plan will be included in Attachment A. Where appropriate, specific OSHA standards or other guidance will be cited and applied.

All work practices and procedures implemented on site must be designated to minimize worker contact with hazardous materials and to reduce the possibility of physical injury. All work will be performed in accordance with applicable Federal 29CFR 1910 and 1926 Health and Safety Regulations and the Federal 29CFR 1910.120 Hazardous Waste Site Safety Regulations.

1.1 Daily Safety Meetings

Daily safety meetings will be held at the start of each shift to ensure that all personnel understand site conditions and operating procedures, to ensure that personal protective equipment is being used correctly and to address worker health and safety concerns.

1.2 Site Safety Plan Acceptance Acknowledgment

The Response Manager shall be responsible for informing all individuals entering the exclusion zone or decontamination zone of the contents of this plan and ensuring that each person signs the Safety Plan Acknowledgment Form in Attachment Z. By signing the Safety Plan Acknowledgment Form, individuals are recognizing the potential hazards present on-site and the policies and procedures required to minimize exposure or adverse effects of these hazards.

1.3 Key Personnel

On Scene Coordinator	Theresa Holz	(312) 802-0676
START Representative	Trenna Seilheimer	(312) 424-3300
Remediation Project Manager	Mitchell Hunt	(636) 262-1281
Technical Assistance Team		
ERRS Contractor:	Environmental Restoration L.L.C. 1666 Fabick Drive St. Louis, Missouri 63026 (636) 227-7477	
Response Manager:	Mitchell Hunt	(636) 262-1281
Site Safety Officer	Mitchell Hunt	(636) 262-1281
Safety Manager:	Lonnie Wright	(636) 227-7477

2.0 ROLES AND RESPONSIBILITIES

2.1 Response Manager (RM): Mitchell Hunt

The Response Manager, as the field representative for ERLLC and its subcontractors, has the responsibility for fulfilling the terms of the contract. The RM must oversee the project and ensure that all technical,

regulatory and safety requirements are met. The Response Manager is the on site Health and Safety Officer (HSO). The Response Manager is responsible for the duties listed in Section 2.2.

2.2 Site Health and Safety Officer (HSO): Mitchell Hunt

The ERLLC Site Safety Officer will be assigned to the site on a full-time basis with functional responsibility for implementing the Site Health and Safety Plan as it applies to ERLLC personnel.

Specific Duties Include:

a. Assume responsibility for health and safety of personnel.
b. Supervise confined space entries.
c. Document safety problems.
d. Supervise decontamination of personnel and equipment.
e. Ensure that monitoring equipment is calibrated / operational.
f. ER will conduct personal air monitoring on all employees as outlined in 29CFR 1910.120(h)(4) where needed.
g. Perform respiratory fit tests.
h. Inventory/inspect PPE prior to personnel entries.
i. Will post all data of personal air sampling results.
j. Select protective equipment levels based upon chemical properties, method of contact and air sample results.
k. Prepare and maintain OSHA Log within 3 days of accident.
l. Insure all personnel are fit for duty.
m. Competent person for excavation/trench entry jobs.
n. Inspect first aid kits/fire extinguishers/SCBA.

2.3 Key Personnel:

The key personnel will be responsible to implement the Health Safety plan in the field on a daily basis. The key personnel will be working directly with the labor force and supervising the entire field task.

2.4 Heavy Equipment Operators:

The operators are responsible for safety in and around the equipment they are operating. They are to assure there are no children present in the immediate work zones. They are to know and follow the H&S plan in proper care and operating of their equipment.

2.5 Truck Drivers:

The truck drivers are responsible in keeping their trucks safe and operating them safely on the public roadways. It is the drivers responsibility to notify his/her immediate supervisor of safety issues with their vehicle.

2.6 Laborers:

The laborers are to assist all tasks on site to assure a safe working environment. Things such as directing traffic, making operators aware of other equipment locations, spotting vehicles as required and making any required changes to ensure a safe work environment.

2.7 Any persons who observe safety problems should immediately report observations/concerns to appropriate key personnel listed in Section 2.1, 2.2 or 2.3 above.

SUBCONTRACTORS

COMPANY NAME			
CONTACT NAME			
PHONE			
ADDRESS			
SCOPE OF WORK			
TRAINING REQUIRED? *(CHECK ONE)*	❑YES	❑NO	DESCRIBE: PER SECTION 5.0 PERSONNEL TRAINING
CONTRACTOR PREQUALIFIED?	❑YES	❑NO	

COMPANY NAME			
CONTACT NAME			
PHONE			
ADDRESS			
SCOPE OF WORK			
TRAINING REQUIRED? *(CHECK ONE)*	❑YES	❑NO	DESCRIBE:
CONTRACTOR PREQUALIFIED?	❑YES	❑NO	

COMPANY NAME			
CONTACT NAME			
PHONE			
ADDRESS			
SCOPE OF WORK			
TRAINING REQUIRED? *(CHECK ONE)*	❑YES	❑NO	DESCRIBE:
CONTRACTOR PREQUALIFIED?	❑YES	❑NO	

3.0 SITE BACKGROUND AND SCOPE OF WORK

3.1 Site Background

The M & H Zinc (RF) site is located in the eastern portion of LaSalle and is irregular in shape. The site is bordered on the west by residential properties. To the north and east is the Little Vermillion River, and south of the property is the active Carus Chemical Company property. All public utilities connected to the property are currently shut-off.

The Site is part of operable unit 2 (OU 2), per a settlement order regarding the entire M & H Zinc property, which includes the former rolling mill facility, another building described as Building 1943 to the east and the former laboratory building along the southern Site boundary. The site is relatively flat with a slight change in elevation from the west to the east.

The remainder of the Site is forested land with numerous buildings in various states of disrepair. The buildings are currently vacant.

The facility started operations in 1858 as zinc smelter. A rolling mill was built in 1866 to produce zinc sheets. The zinc smelting operations ceased in 1961, but the rolling mill operations continued until 1978. In 1980, the Site was purchased by the Carus family and LaSalle Rolling Mills began generating metal blank sheets. This continued until the year 2000 when bankruptcy was declared. In 2003, the EPA conducted an emergency removal action at the Site to address various chemical stores, waste and contamination.

3.2 Scope of Work for ERLLC

1) Mobilization
2) Asbestos pipe wrap removal
3) Field containing asbestos excavation
4) Building demolition and removal

4.0 TASK SAFETY AND HEALTH RISK ANALYSIS

4.1 Task Specific Hazards and Controls

This section is to be addressed in the daily tool box safety meeting as each task is to be attempted. Each Task-Specific Safety Assessment is designed to develop awareness to chemical and physical hazards specific to each task. It would be impractical to repeat in complete detail each control measure and SOP for each job task. Sources and Hazards will be addressed for each job task with reference made to applicable control measures in Sections 4.2, 4.3 and SOP's. The tables in Section 4.2 and 4.3 should be posted in the break area and command post. When the Task-Specific Safety Assessment are discussed additional hazards may need to be addressed.

TASK SPECIFIC SAFETY ASSESSMENT

JOB TASK:	Clearing, Road Construction, Excavation, Asbestos Abatement, Demolition, Loading Out		
PERSONAL PROTECTIVE EQUIPMENT:	Level D		
HAZARD	**SOURCES**	**CONTROL MEASURES**	**REF.**
Heavy Equipment	Excavator, Skid Steer	Experienced operators Controlled work area	Sect 4.3
Small Equipment	Chain Saws	Experienced Operators Controlled Work Areas	Sect 4.3
Noise	Excavator, Skid Steer	Wear proper hearing protection	Sect 4.3
Dermatitis	Poison Ivy/Oak	Beware of plants Avoid Contact	

TASK SPECIFIC SAFETY ASSESSMENT

JOB TASK:	Clearing, Road Construction, Excavation, Asbestos Abatement, Demolition, Loading Out		
PERSONAL PROTECTIVE EQUIPMENT:	Level D		
HAZARD	**SOURCES**	**CONTROL MEASURES**	**REF.**
Topography	Uneven terrain/debris	Keep area organized Beware of slips, trips and falls	Sect 4.3
Wildlife	Insect/Ticks Dogs/Snakes	Beware of and Avoid contact	Sect 4.3
Ergonomics	Lifting and bending	Buddy system Proper lifting and bending	Sect 4.3
Punctures	Sharp Objects Brush	Beware of sharp objects	Sect 4.3

4.2 Chemical Hazards

CHEMICAL	TLV/PEL/ IDLH	PHYSICAL CHARACTERISTICS	ODOR THRESHOLD	ROUTES OF EXPOSURE	PPE POLYMERS	SYMPTOMS ACUTE/CHRONIC	FIRST AID
Asbestos	0.01 f/cc Excursion 1.0 f/cc	Solid, white grayish	N/A	Inhalation, Ingestion	APR Particulate Barrier	Irritation Cancer	Fresh Air Remove from area
Lead	0.050 mg/m^3 0.1mg/m^3	Soft, gray solid	N/A	Inhalation, Ingestion	APR Particulate Barrier	Weakness, tremors, weight loss	Fresh Air Remove from area Wash
Zinc	2mg/m^3 5 mg/m^3	White	N/A	Inhalation, Ingestion, Dermal Contact	APR Particulate Barrier	Fever, chills, vomit, chest tightness, coughing	Fresh Air Remove from area
Cadmium	0.01 mg/m^3 0.005 mg/m^3	Silver-white, blue tinged, lustrous	N/A	Inhalation, Ingestion,	APR Particulate Barrier	Irritation Respiratory Distress Vomit, diarrhea	Fresh Air Remove from area Wash
Arsenic	0.01 mg/m^3	Varied	Varies	Inhalation, Ingestion, Dermal Contact	APR Particulate Barrier	Irritation Respiratory Distress	Fresh Air Remove from area Wash

The above listing should not be taken as a complete assessment of the hazards posed by materials at the M & H Zinc Site. Therefore, personnel must be alert for symptoms of possible exposure such as unusual smells, stinging, burning eyes, nose and throat, skin irritation, as well as depressed, sleepy or tired. Symptoms must be immediately reported to the site supervisor.

See Attachment C for Chemical Hazard Information and MSDSs.

4.3 Physical Hazards

PHYSICAL/ENVIRONMENTAL HAZARD ANALYSIS

HAZARD	PRE PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
Heat Stress	1. Anticipate possible high temperatures (summer months). 2. Be aware of heat stress symptoms, quit sweating, pale, clammy skin, dizziness	1. Cool break area. 2. Drink water. 3. Buddy system/awareness. 4. First aid on site. 5. Medical care if symptoms persist.
Cold Stress	1. Anticipate possible low temperatures (winter months). 2. Remember the temperature does not have to be below freezing to have a cold stress situation.	1. Warm break area. 2. Warm decaffeinated drinks. 3. Buddy system/awareness. 4. First aid on site. 5. Medical care if symptoms persist.
Electrical	1. Locate and mark existing energized lines. 2. De-energize lines if necessary to perform work safely. 3. All electrical circuits will be grounded. 4. All 120 volt single phase which are not a part of the permanent wiring will have a ground-fault interrupter in place. 5. Temporary wiring will be guarded, buried or isolated by elevation to prevent accidental contact by personnel or equipment. 6. Evaluate potential for high moisture/standing water areas and define special electrical wiring needs-typically requirement for low voltage lighting systems.	1. Utilized Certified Electrical Contractor for any new or temporary electrical construction. 2. Ensure electrical equipment/material meet all local, state and federal code and specifications
Ergonomic	1. All operations evaluated for ergonomic impact. 2. Procedures written to define limits of lifting, pulling, etc. 3. Procedures to define how personnel will utilize proper ergonomic concepts and utilize mechanical material handling equipment. 4. Necessary mechanical material handling equipment specified and ordered for project.	1. Proper body mechanics techniques stressed and enforced on a daily basis. 2. Mechanical handling equipment maintained and utilized. 3. Proper body mechanics stressed in scheduled safety meetings. 4. Injuries reported and medically treated if in doubt about severity. 5. Operations changed as necessary based on injury experience or potential.
Existing Site Topography	1. Survey site prior to layout. Identify areas unsafe for personnel or equipment due to physical conditions. 2. Identify/locate existing utilities. 3. Determine impact of site operations on surrounding properties, communities, etc. 4. Identify mechanized equipment routes both on site and onto and off the site. 5. Layout site into exclusion and contamination reduction zones based on initial site evaluation.	1. Awareness to work environment - regular inspection/audits to identify changing conditions. 2. Shut down operations when unknown conditions encountered.
Heavy Equipment Operation	1. Define equipment routes and traffic patterns for site. 2. Insure that operators are properly trained on equipment operation for all equipment required on project. 3. Define safety equipment requirements, including back up alarm and roll over, for all equipment on site. 4. Implement SOP of requiring operators to safety inspect equipment on a daily basis in accordance with manufacturer requirements. 6. Evaluate project requirements to ensure that equipment of adequate capacity is specified.	1. Equipment inspected as required. Equipment repaired or taken out of service. 2. Ground spotters are assigned to work with equipment operators. Utilize standard hand signals and communication protocols. 3. Personnel wear the proper PPE, utilize hearing protection, gloves for handling rigging, etc. 4. Equipment safety procedures discussed at daily scheduled safety meetings. 5. Personnel do not exceed lifting capacities, load limits, etc. for equipment in question. 6. Personnel follow basic SOP's which prohibit passengers on equipment, activating brakes and grounding buckets, securing loads prior to movement, etc.
Noise	1. Local community noise standards examined. 2. Expected loud operations evaluated to determine compliance with community standards. 3. Loud operations scheduled for approved time periods. 4. Noise level standards established for equipment brought onto site.	1. Personnel receive annual audiogram. 2. Personnel required to wear hearing protection. 3. Routine noise level monitoring and dosimetry performed. 4. Defective equipment repaired as needed.

PHYSICAL/ENVIRONMENTAL HAZARD ANALYSIS

HAZARD	PRE PLANNING TO CONTROL HAZARD	ACTIVE CONTROL MEASURES
	5. Hearing protection requirements defined for personnel expected to have excessive exposures.	5. Ongoing hearing conservation education promoted at scheduled safety meetings. 6. Medical evaluation following noise (impact) exposure if symptoms present themselves.
Personal Injuries	1. Site operations will be evaluated for exposures with serious injury potential such as falling objects, pinch points, flying objects, falls from elevated surfaces, etc. 2. A written Fall Prevention Program will be developed if workers will be required to work at heights greater than 10 feet from unguarded work locations. 3. PPE requirements will be based on potential for injury.	1. Personnel will wear required PPE. 2. Specialized equipment such as rope grabs, winches, etc. will be inspected prior to each use. Defective equipment will be immediately replaced. 3. All injury and near miss incidents will be reported to the HSO. 4. First aid/CPR trained person on site at all times. 5. All injuries will be treated on site with advanced medical treatment being sought if doubt about severity.
Small Equipment Usage	1. Site operations evaluated to determine need for specialized intrinsically safe, explosion-proof and UL approved equipment and instruments. 2. Implement requirement for G.F.I., double insulated tool usage, or assured grounding program in all outdoor operations, will be utilized. 3. Specify equipment needs to ensure that equipment used only for the purpose for which it is designed and to prevent abuse or misuse of the equipment. 4. Specify requirements for the inspections and maintenance of specialized equipment. 5. Specify that all equipment utilized on the project meets all OSHA requirements.	1. First aid on site. 2. Transport for medical care if necessary.
Wildlife	1. Inspect work environment where tasks are being performed. 2. Awareness to bites. 3. Dogs, animals, poison ivy, etc.	1. First aid on site. 2. Seek medical attention if symptoms-signs
Trenching and Excavation	1. Implement ERLLC excavation procedures if entry required into any excavation greater than 4 feet depth. 2. Specify that Competent Person(s) assigned to project be present at all times personnel inside trench(s). 3. Specify that a Professional Engineer design specialized shoring systems for those that are extremely deep. 4. Specify special PPE and monitoring requirements for excavations in soils contaminated with hazardous materials or gases and vapors. 5. Ensure excavations comply with 29CFR 1926, Subpart P.	1. Competent person in the immediate area at all times that personnel are required to enter trenches. 2. Operations shut down if the excavation shows any sign of cave in, excessive water, unacceptable levels of toxic contaminants, changing weather, or shoring systems have visible defects. 3. Equipment operators keep all personnel inside excavation in sight. No suspended loads or movement of buckets over personnel. 4. Regular monitoring is performed in excavations where toxic gases or vapors are possible.
Weather Conditions	1. Evaluate prevailing weather conditions for the site. 2. Contingency plans developed for likely severe weather conditions such as tornado, and extreme thunderstorm. 3. Provide for daily weather forecast service in extreme weather areas. 4. Plan to weatherize safety systems, such as showers and eye washes, that would be impacted by extreme cold weather. 5. Order necessary specialized cold weather clothing. 6. Grounding and bonding requirements defined for thunderstorm areas. 7. Sheltered air conditioned break areas provided for extreme hot and cold weather zones.	1. Employees trained in contingency plan for severe weather conditions. 2. Emergency water sources inspected regularly in cold areas. 3. Weather service contacted regularly during storm conditions. 4. Supervisory personnel cease operations during extreme storm conditions (i.e., thunderstorms). Personnel evacuate to safe assembly area.

5.0 PERSONNEL TRAINING

5.1 Initial Training

a. 40 Hour Training
All field employees receive forty hours of classroom training on safe work practices and hazardous waste sites.

b. Supervisor/Managers
Manager and Supervisors receive eight hours of training on safe management of hazardous waste sites. All training complies with 29CFR 1910.120.

The following individuals are Site Supervisors:
[1] Mitchell Hunt

5.2 Site Specific Training

1. All assigned personnel will receive site specific training (review of this document) on routes of exposure and adverse health effects associated with the chemicals listed on the 4..2 Chemical Hazards or on MSDS.

2. At least one member of each work crew shall have training in the use of portable fire extinguishers in accordance with 29CFR 1910.157G.

3. In accordance with 29CFR 1910.120, all personnel newly assigned to hazardous waste work will receive 3 days of on the job training by an experienced supervisor. This typically is achieved by coordinating the work schedule so that they perform 25% of the expected workload the first day; 50% the second day, and 75% the third day.

5.3 Annual Refresher. All field employees receive eight hours of refresher training on the above topics within the anniversary date of their initial 40 hour class.

5.4 First Aid/CPR. All key personnel receive first aid training. Treatment limited to Good Samaritan/minor first aid. All traumatic/major first aid and cardiac problems will be referred to medical facilities.

5.5 Subcontractor Requirements. All subcontractors entering the contamination reduction zone and exclusion zone will have adequate training satisfying 29 CFR 1910.120.

6.0 PERSONAL PROTECTIVE EQUIPMENT

The following is a brief description of the personal protective equipment which may be required during various phases of the project. The U.S. EPA terminology for protective equipment will be used; Levels A, B, C and D.

Respiratory protective equipment shall be NIOSH-approved and use shall conform to OSHA 29 CFR Part 1910.134 Requirements. Each employer shall maintain a written respirator program detailing selection, use, cleaning, maintenance and storage of respiratory protective equipment. The written Respirator Program will be maintained at the local and regional offices.

6.1 Level A Protection

- The extremely hazardous substance requires the highest level of protection for skin, eyes and the respiratory system;
- Substances with a high degree of hazard to the skin are known or suspected;
- Chemical concentrations are known to be above IDLH levels; or,
- Biological hazards requiring Level A are known or suspected.

6.2 Level B Protection

- The substance(s) has been identified and requires a high level of respiratory protection but less skin protection;
- Concentrations of chemicals in the air are IDLH or above the maximum use limit of an APR with full-face mask;
- Oxygen deficient or potentially oxygen deficient atmospheres (<19.5%) are possible; and/or,
- Confined space entry may require Level B.
- Incomplete identification of gases and vapors, but not suspected to be harmful to skin or skin absorbable.

6.3 Level C Protection

- The same level of skin protection as Level B, but a lower level of respiratory protection is required;
- The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove contaminants; or,
- The substance has adequate warning properties and all criteria for the use of APR respirators has been met.

6.3.1 Level C Protective Equipment at a Minimum Shall Consist of:

Protective Gear - Level C	(Check and list required type)
Survivair Air Purifying Respirator or PAPR	Fullface
Cartridges (type)	P-100
Chemical Resistant/Protective Coveralls (type)	Tyvek*
Full Body Apron or Other (type)	Rubber
Inner Gloves	Latex
Outer Chemical Gloves (type)	Latex**
Safety shoes/Boots (type)	Steel Toed
Hard Hat	X
Respirator Inserts	X
Reflective Safety Vests	X

6.4 Level D Protection

- The atmosphere is demonstrated to be below OSHA permissible exposure limits

6.4.1 Level D Protection Equipment at a Minimum Shall Consist of:

Protective Gear - Level D	(Check and list required type)
Chemical Resistant/Protective Coveralls (type)	Cotton Coveralls
Rain Suit	
Safety Shoes/Boots (type)	Steel Toed
Boot Covers (booties)	
Work Gloves (type)	Leather
Hard Hat	NIOSH approved
Face Shield	
Safety Glasses	Side Shields
Modifications:	

Specific operating procedures for PPE and Respiratory Protection are in Attachment D.

6.5 Decisions to Upgrade/Downgrade PPE

[1] All decisions to downgrade from Level B to C or D must be accompanied by air monitoring results. The Regional Safety Managers must be advised of on-site decisions to downgrade. All decisions must be documented with an Addendum to the Plan.

[2] The following conditions will necessitate reevaluation of PPE use.

a. commencement of a new work not previously identified
b. change of job tasks during a work phase
c. change of season/weather
d. contaminants other than those identified in Safety Plan
e. change in ambient levels of contaminants
f. change in work which affects degree of chemical contact

7.0 MEDICAL SURVEILLANCE

7.1 Pre-Employment Physical

a. Pre-employment and periodic update medical examinations are required for persons working at hazardous waste sites.
b. All physicals must be completed and documented prior to assignment to this site.
c. All physical exams will be conducted following parameters established by the respective employee's Corporate Physicians.

7.2 Site Specific Physical Examination

A current Fitness for Duty statement will be kept on site for all ERLLC personnel.

7.3 Annual Physical Exam

The medical examination must have been within a 12-month period prior to on-site activity and repeated annually.

7.4 Accidental/Suspected Exposure Physical

a. Following any accidental or suspected uncontrolled exposure to site contaminants, personnel should be scheduled for a special physical examination.
b. The physical examination will be specific for the contaminants and the associated target organs or physiological system.
c. Questions regarding the type of physical can be directed to ERLLC's Director of Health and Safety or the ERLLC Corporate Physician.

7.5 Contractor Physical Examination Requirements

All subcontractors entering the contamination reduction or exclusion zone will have adequate medical surveillance satisfying 29CFR 1910.120.10 (f).

7.6 Site Documentation

All personnel on-site must have the following documentation available on site:

[1] Copy of 40 hour certificate
[2] Copy of Manager's/Supervisor's 8 hour certificate
[3] Copy of 8 Hour Annual Refresher (if > 12 months since 40 hour)

[4] CPR/First Aid Certificate (annual)
[5] Respirator Fit Test (annual)
[6] Medical Fitness for Duty

8.0 AIR MONITORING AND ACTION LEVELS

According to 29 CFR 1910.120 (h) Air Monitoring shall be used to identify and quantify airborne levels of hazardous substances and health hazards in order to determine the appropriate level of employee protection needed on-site.

8.1 Routine Air Monitoring Requirements

- Perimeter air monitoring to determine if off-site migration of contaminates is occurring.
- Perimeter asbestos and dust in air monitoring at work site and along property perimeter.

Air monitoring will consist at a minimum of the criteria listed below. All air monitoring data will be documented and available in the command post site files for review by all interested persons. Air monitoring instruments will be calibrated and maintained in accordance with the manufacturer's specifications.

8.2 Site Specific Air Monitoring Requirements

INSTRUMENT	COMPOUNDS TO DETECT	FREQUENCY	COMMENTS/ ACTION LEVEL
Personal Air Pumps	Asbestos	Daily*	PEL *frequency will be reduced if < PEL
High Volume Pumps	Asbestos and Dust	Daily*	PEL *frequency will be reduced if < PEL

8.3 Personnel Monitoring

Explain strategy or why not required: Initially daily samples for each job class will be taken; if results are < than the PEL then the frequency will be reduced as long as results stay < PEL.

8.3.1 Sampling Methods (media type, analyses, NIOSH Method Number, etc.): Phase Contrast Microscopy

8.3.2 Describe calibration procedures: Rotometer

8.3.3 Analytical laboratory to be used: TBD

8.4 Noise Monitoring: [ ] Yes [X] No

Describe monitoring strategy: Monitoring will be conducted if conditions warrant.

8.5 Heat Stress Monitoring: [ ] Yes [X] No

Describe monitoring strategy: Monitoring will be conducted if conditions warrant.

Perimeter: [X] Yes [ ] No

Describe: Asbestos and dust particulates conducted by START

8.6 Other: [ ] Yes [X] No

8.7 Name(s) of Monitoring Technician(s): Mitchell Hunt – Environmental Restoration
Trenna Seilheimer – START representative

8.8 Location of Monitoring Records:

Copies of monitoring records will be retained in the job file upon the completion of the job. Additional copies will be maintained in the ER Health and Safety Department.

9.0 SITE CONTROL AND STANDARD OPERATING PROCEDURES

9.1 Work Zones

The primary purpose for site controls is to establish the hazardous area perimeter, to reduce migration of contaminants into clean areas and to prevent access or exposure to hazardous materials by unauthorized persons. At the end of each workday, the site should be secured or guarded, to prevent unauthorized entry. The Clean Zone, Contamination Reduction Zone and Contamination Zone will be cordoned off as separate entities.

9.1.1 Clean Zone/Support Zone

This uncontaminated support zone or clean zone will be the area outside the exclusion and decontamination zones and within the geographic perimeters of the site. This area is used for staging of materials, parking of vehicles, office and laboratory facilities, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the exclusion zone. All personnel arriving in the support zone will upon arrival, report to the command post and sign the site entry/exit log. There will be one controlled entry/exit point from the clean zone to the decontamination zone.

[1] Location of Clean Zone: Encompasses entire site outside of Bannerguard

9.1.2 Decontamination Zone

The decontamination zone will provide a location for removal of contaminated personal protective equipment and final decontamination of personnel and equipment. All personnel and equipment should exit via the decon area. A separate decontamination area will be established for heavy equipment.

[1] The decontamination zone will be at boundary of each EZ

9.1.3 Exclusion Zone/Hot Zone

The exclusion zone will be the "hot-zone" or contaminated area inside the site perimeter. Entry to and exit from this zone will be made through a designated point. Appropriate warning signs to identify the exclusion zone should be posted (i.e. "DANGER - AUTHORIZED PERSONNEL ONLY", "PROTECTIVE EQUIPMENT REQUIRED BEYOND THIS POINT", etc.). Exit from the exclusion zone must be accompanied by personnel and equipment decontamination as described in Section 10.0.

[1] Exclusion Zone will be established at each remediation area.
[2] General Safety Rules for Exclusion Zone
- a. wear the appropriate level of PPE defined in plan
- b. do not remove any PPE or break the integrity to pick, scratch, or touch parts of your body
- c. no smoking, eating or drinking
- d. no horseplay
- e. no matches or lighters in this zone
- f. implement the communication and line of sight system

9.2 General Field Safety Rules

- No horseplay is allowed at any time.
- All visitors must be sent to the command post.
- It is ERLLC policy to practice administrative hazard control for all site areas by restricting entrance to exclusion zones to essential personnel and by using operational SOPs.
- Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or set equipment on the ground. Stay away from any waste drums unless necessary. Protect equipment from contamination by bagging.
- Eating, drinking, or smoking is permitted only in designated areas in the support zone.
- Hands and face must be thoroughly washed upon leaving the decon area.
- Beards or other facial hair that interferes with respirator fit will preclude admission to the hot zone.
- All equipment must be decontaminated or discarded upon exit from the exclusion zone.
- All personnel exiting the exclusion zone must go through the decontamination procedures described in Section 10.0.
- Safety Equipment described in Section 6.0 will be required for all field personnel.
- Personnel will only travel in vehicles where individual seats (for each occupant)are provided. Seat belts will be worn as required.
- Fire extinguishers will be available on site and in all areas with increased fire danger such as the refueling area.
- A minimum of two personnel will always be on site whenever heavy equipment is operated. Only necessary personnel need to be on or around heavy equipment.
- Employees will not interfere with or tamper in any way with air monitoring equipment.
- Backhoes or other equipment with booms shall not be operated within 10 feet of any electrical conductor.
- Visitor log will be maintained at the command post. All personnel coming on site will sign in and out on a daily basis.
- Security will be maintained at the site by closing all gates during normal work hours. Site will be locked up in the evening or security on site.
- If unauthorized members of the public are found on site, contact RM immediately and do not leave the individual unattended.

- Visitors are not allowed in the work areas without authorization. Visitors must sign in at the Command Post or decontrailer and receive authorization to enter the site.

- Buddy System

  [1] The buddy system is mandatory at anytime that personnel are working in the exclusion zone, remote areas, on tanks, or when conditions present a risk to personnel.
  [2] A buddy system requires at least two trained/experienced people who work as a team and maintain at a minimum audible and/or visual contact while operating in the exclusion zone.

- Communication Procedures

  [1] Radios will be used for on site communications and Repeater channel will be the designated channel.
  [2] The crews should remain in constant radio or visual contact while on site.

  [3] The site evacuation signal will be 3 blasts on the air or vehicle horn.

10.0 DECONTAMINATION PROCEDURES

In general, everything that enters the exclusion zone at this site must either be decontaminated or properly discarded. Prior to demobilization, contaminated equipment will be decontaminated and inspected before it is moved off site. Gross decon of equipment will take place prior to exiting property or wrapped in poly.

10.1 Procedures for Equipment Decontamination

Following decontamination and prior to exiting from the hot zone, key personal shall be responsible for insuring that the item has been sufficiently decontaminated.

Equipment decontamination will consist of the following steps:

1) **Decontamination with pad**

a gross removal before enter pad
b on entering the pad equipment will be pressure washed
c truck tires will be pressure washed
d all equipment will be inspected before exiting

2) **Decontamination with out pad**

a poly and or plywood will be place where truck is enter the loading zone
b this area will be inspected before and after truck exiting
c poly will be replaced as needed

3) **Decontamination with poly wrap**

a all equipment tracks and buckets will have gross removal before poly wrap
b equipment tracks and buckets will be poly wrap before exiting site

10.2 Procedure for Personnel Decontamination

This decontamination procedure applies to personnel at this site wearing Level C protection. This site will not have a decontamination trailer on site. This site will consist of dry decontamination methods. A hand and face wash station will be present for washing after exiting the hot zone. The job classes on this site are not expected to be exposed above the PEL

THE CLEAN ROOM

1 Enter clean room
2 Remove excessive street clothing
3 Put on proper suit
4 Inspect respirator, put it on, check fit
5 Proceed to dirty room

THE DIRTY ROOM

6 Put on any equipment or additional clothing
7 Proceed to work area

THE WORK AREA TO DIRTY ROOM

8 Try to remove gross contamination (mist spray and/or HEPA vac)
9 Remove all outer protective clothing (except respirator)
10 Place disposable clothing in a bag
11 Proceed to shower

THE SHOWER (N/A)

12 Workers may shower if they were exposed to an unexpected release during operations
13 Showers may be required for job classes exposed above the PEL
14 Remove respirator, wash, and dispose of filters

THE CLEAN ROOM

15 Dry off, dress back into street cloths
16 Exit clean room

Eating, drinking, chewing gum/tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and/or ingestion of materials is prohibited in any areas where the possibility of contamination exists and is permitted only in the designated break area.

10.3 Emergency decontamination will consist of the following steps:
(Any blood contaminated material will be bag, labeled and accompany the individual to the hospital.)
Same steps as above if possible. Gross contamination at a minimum.

10.4 Decontamination equipment:
Water source on site.

10.5 Disposition of Decontamination Wastes

[1] All equipment will be decontaminated with water and filtered through a 5 micron filter and disposed at the landfill (asbestos cell).

[2] All under clothing will be laundered separately.

11.0 HAZARD COMMUNICATION PROGRAM

Each contractor will be responsible for maintaining a copy of their Hazardous Communication Program and MSDSs on site. The following items are specific to this job site:

11.1 Material Safety Data Sheets

[1] Material Safety Data Sheets will be maintained at the Command Post in the Health and Safety Binder.
[2] MSDSs will be available to all employees for review during the work shift.
[3] See Attachment C and/or the ERLLC Health and Safety Binder.

11.2 Container Labeling

[1] All containers received on site will be inspected by the contractor using the material to ensure the following:
A. all containers clearly labeled
B. appropriate hazard warning
C. name and address of the manufacturer

11.3 Chemicals brought to site:

[1] Gasoline
[2] Diesel Fuel

11.4 Employee Training and Information

[1] Prior to starting work, each employee will attend a health and safety orientation and will receive information and training on the following:
A. and overview of the requirements contained in the Hazardous Communication Standard
b. Hazardous chemicals present at the site
C. the location and availability of the written Haz Comm Program
D. physical and health effects of the hazardous chemicals
E. methods of preventing or eliminating exposure
F. emergency procedures to follow if exposed
G. how to read labels and review MSDSS to obtain information
H. location of MSDS file and location of hazardous chemical list

See ER's Corporate Health and Safety Binder for Hazard Communication Program and applicable MSDSs.

12.0 EMERGENCIES/ACCIDENTS/INJURIES

It is essential that site personnel be prepared in the event of an emergency. Emergencies can take many forms; illnesses or injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather. The following sections outline the general procedures for emergencies. Emergency information should be posted as appropriate.

12.1 Emergency Contacts

SERVICE	CITY / LOCATION	EMERGENCY PHONE
Fire	LaSalle	**911**
Police	LaSalle	**911** or
Sheriff	LaSalle	**911** or

Ambulance	LaSalle	**911** or
Hospital	Illinois Valley Community Hospital 925 West Street, Peru, IL 61354	815 223-8900
Poison Control Center		800 222-1222

Directions from Site to Hospital: (See Map in Attachment B):

NOTE: Maps and directions to the hospital will be posted in the office and office trailer and kept in on site vehicles.

Total Est. Time: 9 minutes; **Total Est. Distance:** 2.71 miles:
Start out going SOUTH on Sterling St toward 11th St; Turn RIGHT onto 3rd St; Turn RIGHT onto West St;

The following individuals have been trained in CPR and First Aid: Key personal

12.2 Additional Emergency Numbers

National Response Center	800-424-8802
Center for Disease Control	404-488-4100 (24 hr)
AT&F (Explosives Information)	800-424-9555
Chemtrec	800-424-9300

Environmental Restoration LLC Contacts

ERLLC	888 -814 - 7477 (24 Hr.)
ERLLC (St. Louis)	636 -227 - 7477

12.3 Emergency Equipment Available On-Site

COMMUNICATIONS EQUIPMENT	LOCATION
Public Telephones	N/A
Private Telephones	N/A
Mobile Telephones	Mitchell Hunt and Key personal
Two-Way Radios	Site office and Job site
Emergency Alarms/Horns	Vehicle horns
Other:	N/A

MEDICAL EQUIPMENT	LOCATION
First Aid Kits	Site office and pickup truck
Stretcher/Backboard	N/A
Eye Wash Station	Within 100 feet of hazard zone
Safety Shower	N/A

FIRE FIGHTING EQUIPMENT	LOCATION
Fire Extinguishers	Site office and Job site
Other	

SPILL OR LEAK EQUIPMENT	LOCATION
Absorbent Boom/Pads:	N/A
Dry Absorbent:	N/A

ADDITIONAL EMERGENCY EQUIPMENT	LOCATION
N/A	

12.4 Accident Reporting/Investigations

12.4.1 All injures or accidents must be reported to the Project Manager or Site Safety Officer immediately.

12.4.2 The Project Manager will contact ERLLC Health/Safety by telephone immediately. The District Health/Safety Manager will conduct an immediate investigation of the accident and document all results on the Supervisor's Accident Investigation Report and State Worker's Compensation Form.

12.4.3 The Project Manager will complete the First Report of Injury and fax a copy to ERLLC Health/ Safety immediately.

12.4.4 The Project Manager will assign a supervisory individual to accompany all injured personnel to the clinic and follow guidelines outlined in the ERLLC Return to Work Program.

12.4.5 Copies of all Supervisors' Accident Reports will be sent to the ERLLC Director of Health and Safety.

13.0 EMERGENCY RESPONSE CONTINGENCY PLAN

13.1 Project Personnel Responsibilities During Emergencies

ER, EPA health & safety will be notified of any emergencies

RESPONSE MANAGER (RM)

As the administrator of the project, the RM has primary responsibility for responding to and correcting emergency situations. The RM will:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, total evacuation and securing of the site or up-grading or down- grading the level of protective clothing and respiratory protection.
- Take appropriate measures to protect the public and the environment including isolating and securing the site, preventing run-off to surface waters and ending or controlling the emergency to the extent possible.
- Ensure that appropriate Federal, State and local agencies are informed, and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. In the event of an air release of toxic materials, the local authorities should be informed in order to assess the need for evacuation. In the event of a spill, sanitary districts and drinking water systems may need to be alerted.
- Ensure that appropriate decon treatment or testing for exposed or injured personnel is obtained.
- Determine the cause of the incident and make recommendations to prevent the recurrence.
- Ensure that all required reports have been prepared.

13.2 Medical Emergencies:

Any person who becomes ill or injured in the exclusion zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket.) First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must immediately be reported to Health and Safety.

Any person transporting an injured/exposed person to a clinic or hospital for treatment should take with them directions to the hospital and information on the chemical(s) they may have been exposed to. This information is included in Table 4.2. Any vehicle used to transport contaminated personnel, will be cleaned or decontaminated as necessary.

13.3 Fire or Explosion:

In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival the RM or designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on- site.

If it is safe to do so, site personnel may:

- Use fire fighting equipment available on site.
- Remove or isolate flammable or other hazardous materials which may contribute to the fire.

13.4 Spills, Leaks or Releases:

In the event of a spill or a leak, site personnel will:

- locate the source of the spillage and stop the flow if it can be done safely.
- Begin containment and recovery of the spilled materials.

13.5 Evacuation Routes:

Evacuation routes have been established by work area locations for this site. All buildings and outside work areas have been provided with two designated exit points. Evacuation should be conducted immediately, without regard for equipment under conditions of extreme emergency. See site map for evacuation routes.

- Evacuation notification will be three blasts on an air horn, vehicle horn, or by verbal communication via radio.

- Keep upwind of smoke, vapors or spill location.

- Exit through the decontamination corridor if possible.

- If evacuation is not via the decontamination corridor, site personnel should remove contaminated clothing once they are in a location of safety and leave it near the exclusion zone or in a safe place.

- The RM will conduct a head count to insure all personnel have been evacuated safely.

- In the event that emergency site evacuation is necessary, all personnel are to:

    1. Escape the emergency situation;

2. Decontaminate to the maximum extent practical; and,

3. Meet at the command post.

14.0 CONFINED SPACE

A confined space is defined as a space or work area not designed or intended for normal human occupancy, having limited means of access and poor natural ventilation, and or any structure, including buildings or rooms which have limited means of egress. Examples include tanks, vats, and basements. Confined spaces identified at this site are listed below. If a confined space entry is conducted, it will be done in accordance with procedures presented in ER Confined space plan.

No confined space work anticipated.

SITE SAFETY PLAN AMENDMENT #	
SITE NAME:	
DATE:	
TYPE OF AMENDMENT:	
REASON FOR AMENDMENT:	
ALTERNATE SAFEGUARD PROCEDURES:	
REQUIRED CHANGES IN PPE:	

_____

USEPA On Scene Coordinator (Date)

_____

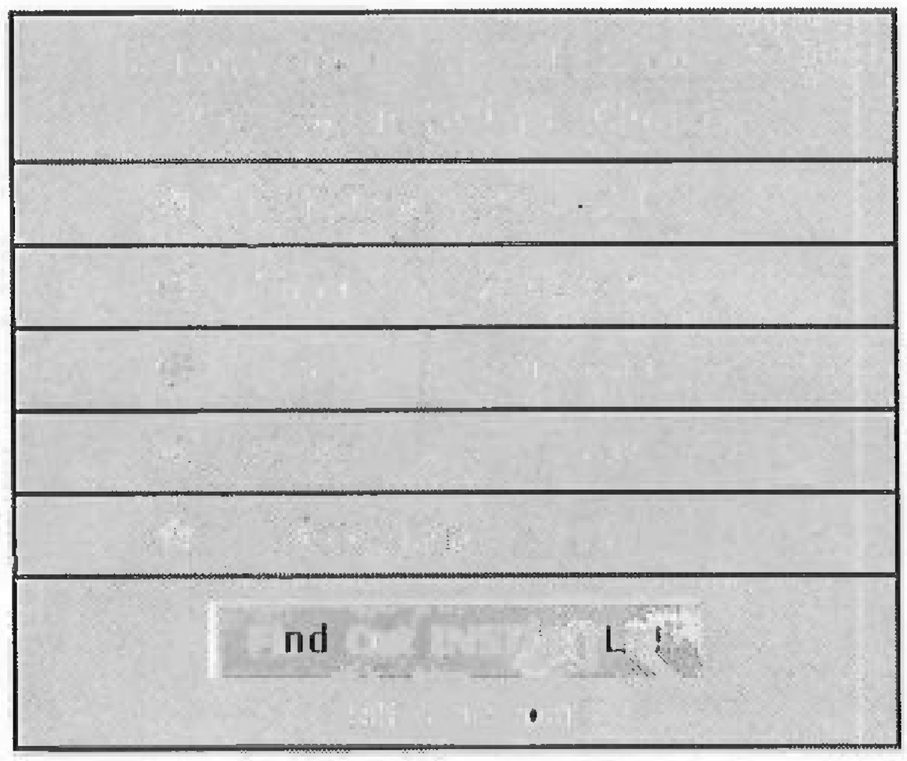
ERLLC Project Manager (Date)

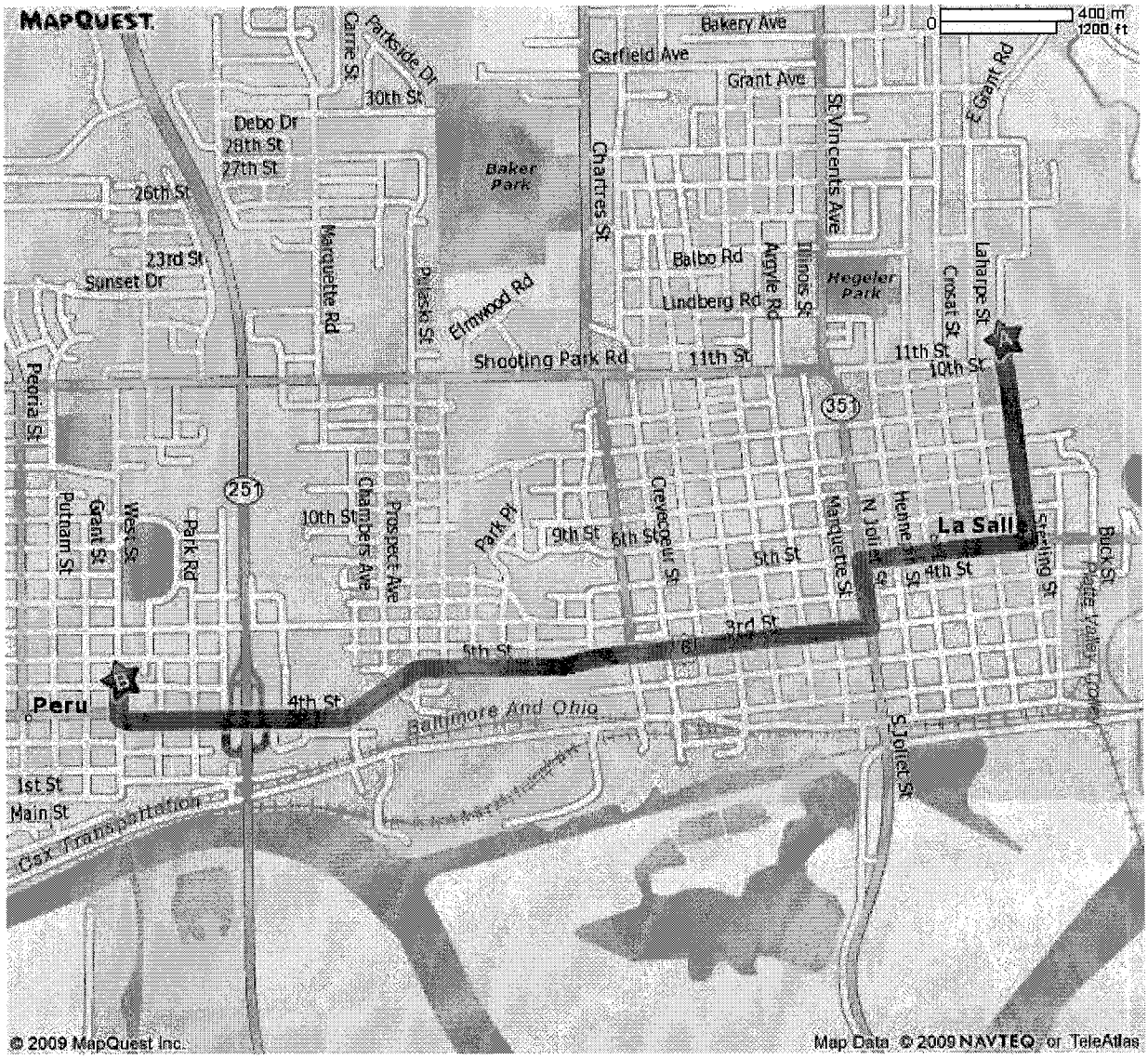
_____

ERLLC Safety Manager (Date)

ATTACHMENT B

SITE MAPS





ATTACHMENT C

CHEMICAL HAZARD INFORMATION

GASOLINE - GASOLINE, UNLEADED
MATERIAL SAFETY DATA SHEET
NSN: 9130012084172
Manufacturer's CAGE: COLOR
Part No. Indicator: A
Part Number/Trade Name: GASOLINE

General Information

Item Name: GASOLINE, UNLEADED
Company's Name: COLORADO REFINING COMPANY
Company's Street: 5800 BRIGHTON BLVD
Company's City: COMMERCE CITY
Company's State: CO
Company's Country: US
Company's Zip Code: 80022
Company's Emerg Ph #: 517-463-1164, CHEMTREC 800-424-9300
Company's Info Ph #: 303-295-4500
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 064
Status: SE
Date MSDS Prepared: 29JAN91
Safety Data Review Date: 30APR93
Supply Item Manager: KY
MSDS Preparer's Name: M.N. MARTIN
MSDS Serial Number: BQNHW
Specification Number: VV-G-1690
Spec Type, Grade, Class: CIVGAS
Hazard Characteristic Code: F2
Unit Of Issue: DR
Unit Of Issue Container Qty: 55 GALLONS
Type Of Container: DRUM
Net Unit Weight: 320.6 LBS

Ingredients/Identity Information

Physical/Chemical Characteristics

Appearance And Odor: SILVER, GREY OR CLEAR LIQUID WITH CHARACTERISTIC GASOLINE ODOR
Boiling Point: <100F,<38C
Vapor Pressure (MM Hg/70 F): 400-900MM
Vapor Density (Air=1): 3-4
Specific Gravity: 0.65-0.75
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: <1 (ETHER=1)
Solubility In Water: INSOLUBLE
Percent Volatiles By Volume: 100
Corrosion Rate (IPY): UNKNOWN

Fire and Explosion Hazard Data

Flash Point: <-40F,<-40C
Lower Explosive Limit: 1.3%
Upper Explosive Limit: 6.0%
Extinguishing Media: USE CARBON DIOXIDE, FOAM, OR DRY CHEMICAL. USE WATER FOG TO COOL SRROUNDING CONTAINERS.
Special Fire Fighting Proc: WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.
Unusual Fire And Expl Hazrds: CONTAINERS WILL EXPLODE IN FIRE. VAPORS HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND FLASH BACK.

Reactivity Data

Stability: YES
Cond To Avoid (Stability): HIGH HEAT, OPEN FLAMES AND OTHER SOURCES OF IGNITION
Materials To Avoid: STRONG OXIDIZING AGENTS

Hazardous Decomp Products: CARBON MONOXIDE, CARBON DIOXIDE AND OTHER HYDROCARBON COMPOUNDS DURING COMBUSTION.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT APPLICABLE

Health Hazard Data

LD50-LC50 Mixture: ORAL LD50 (RAT) IS UNKNOWN
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: ACUTE-INHALATION:IRRITATION OF UPPER DERMATITIS, PNEUMOTITIS, POLYNEUROPATHY, PULMONARY EDEMA, AND KIDNEY DAMAGE.
Carcinogenicity - NTP: YES
Carcinogenicity - IARC: YES
Carcinogenicity - OSHA: YES
Explanation Carcinogenicity: CONTAINS Benzene [71-43-2] WHICH IS LISTED BY NTP AND IARC AND REGULATED BY OSHA AS A CARCINOGEN.
Signs/Symptoms Of Overexp: COUGHING, DIFFICULTY IN BREATHING, NAUSEA, VOMTING, FATIGUE, DIZZINESS, HEADACHES, UNCONSCIOUSNESS, AND EYE IRRITATION, DRY SKIN.
Med Cond Aggravated By Exp: PERSONS WITH A SKIN AND PULMONARY DISORDERS SHOULD USE CAUTION WHEN HANDLING OR USING THIS PRODUCT.
Emergency/First Aid Proc: SKIN: REMOVE CONTAMINATED CLOTHING. WASH WITH SOAP AND WATER. GET MEDICAL ATTENTION IF IRRITATION PERSISTS. INHALATION:REMOVE TO FRESH AIR & RESTORE BREATHING IF NECESSARY. GET MEDICAL ATTENTION. EYE:IMMEDIATELY FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION. INGESTION: GET IMMEDIATE MEDICAL ATTENTION. DO NOT INDUCE VOMITING. NOTHING BY MOUTH IF UNCONSCIOUS.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: REMOVE SOURCES OF IGNITION & WEAR PROTECTIVE EQUIPMENT. MINOR: ABSORB MATERIAL WITH CLAY, VERMICULITE, OR SIMILAR ABSORBENT MATERIAL. PLACE IN DISPOSAL CONTAINERS. MAJOR: DIKE & CONTAIN SPILL. SHUT OFF LEAKS. REMOVE LIQUID BY VACUUM OR ABSORBENT.
Neutralizing Agent: NOT APPLICABLE
Waste Disposal Method: WASTE MAY BE BURNED IN AN APPROVED INCINERATOR OR DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS.
Precautions-Handling/Storing: STORE IN A COOL, VENTILATED WORK AREA. KEEP CONTAINERS CLOSED WHEN NOT IN USE. FLAMMABLE LIQUID; EMPTY CONTAINERS CAN BE HAZARDOUS.
Other Precautions: THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT SHOULD BE MADE BY THE MATERIAL USER BASED ON THE PARTICULAR CONDITIONS WHERE THE MATERIAL IS TO BE USED TOGETHER WITH INFORMATION CONTAINED IN THIS MSDS.

Control Measures

Respiratory Protection: USE NIOSH APPROVED RESPIRATOR. AIR-SUPPLIED OR FILTERING TYPE WITH ORGANIC VAPOR CARTRIDGES ARE RECOMMENDED.
Ventilation: LOCAL AND MECHANICAL EXHAUST RECOMMENDED. AVOID OPEN ELECTRICAL SOURCES NEAR PRODUCT VAPOR AREAS.
Protective Gloves: NEOPRENE, NITRILE, OR POLYVINYL ALCOHOL
Eye Protection: USE CHEMICAL SAFETY GOGGLES & FACESHIELD
Other Protective Equipment: EYE WASH STATION & SAFETY SHOWER.
Work Hygienic Practices: DO NOT TAKE INTERNALLY. AVOID SKIN CONTACT. WASH SKIN AFTER USING PRODUCT. DO NOT EAT, DRINK OR SMOKE IN WORK AREA.
Suppl. Safety & Health Data: NONE

Transportation Data

Trans Data Review Date: 93168
DOT PSN Code: GTN
DOT Proper Shipping Name: GASOLINE
DOT Class: 3
DOT ID Number: UN1203
DOT Pack Group: II
DOT Label: FLAMMABLE LIQUID
IMO PSN Code: HRV

IMO Proper Shipping Name: GASOLINE
IMO Regulations Page Number: 3141
IMO UN Number: 1203
IMO UN Class: 3.1
IMO Subsidiary Risk Label: -
IATA PSN Code: MUC
IATA UN ID Number: 1203
IATA Proper Shipping Name: GASOLINE
IATA UN Class: 3
IATA Label: FLAMMABLE LIQUID
AFI PSN Code: MUC
AFI Prop. Shipping Name: GASOLINE
AFI Class: 3
AFI ID Number: UN1203
AFI Pack Group: II
AFI Basic Pac Ref: 7-7

Disposal Data

Label Data

Label Required: YES
Label Status: G
Common Name: GASOLINE
Special Hazard Precautions: ACUTE-INHALATION:IRRITATION OF UPPER
DERMATITIS, PNEUMOTITIS, POLYNEUROPATHY, PULMONARY EDEMA, AND KIDNEY
DAMAGE. COUGHING, DIFFICULTY IN BREATHING, NAUSEA, VOMTING, FATIGUE,
DIZZINESS, HEADACHES, UNCONSCIOUSNESS, AND EYE IRRITATION, DRY SKIN.
Label Name: COLORADO REFINING COMPANY
Label Street: 5800 BRIGHTON BLVD
Label City: COMMERCE CITY
Label State: CO
Label Zip Code: 80022
Label Country: US
Label Emergency Number: 517-463-1164, CHEMTREC 800-424-9300

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: GN LS Diesel 2
MSDS NUMBER: 400535M - 3
PRODUCT CODE(S): 00429

MANUFACTURER ADDRESS:Motiva Enterprises LLC, P.O. Box 4540, Houston, TX. 77210-4540

TELEPHONE NUMBERS
Spill Information: (877) 242-7400
Health Information: (877) 504-9351
MSDS Assistance Number: (877) 276-7285

SECTION 2 PRODUCT/INGREDIENTS

CAS#	CONCENTRATION	INGREDIENTS
Mixture	100 %weight	#2 Diesel
68814-87-9	0 - 99.99 %weight	Full Range Straight Run Middle Distillate
64742-46-7	0 - 99.99 %weight	Hydrotreated Middle Distillate
64741-59-9	0 - 39.99 %weight	Light Catalytic Cracked Distillate
71-43-2	0.01 - 0.64 %weight	Benzene
7704-34-9	0 - 0.04 %weight	Sulfur

NOTE: H2S is a naturally occuring constituent in the petroleum stream and is not added separately to the product.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Appearance & Odor: Bright and clear liquid (Tax Exempt Diesels - pale red liquid). Oil-type odor.
Health Hazards: Hydrogen sulfide (H2S), an extremely flammable and toxic gas, may be present. Causes severe skin irritation. Toxic and harmful if inhaled.
May be harmful or fatal if swallowed. Do not induce vomiting. May cause aspiration pneumonitis.
Physical Hazards: Combustible Liquid.
NFPA Rating (Health, Fire, Reactivity): 2, 2, 0
Hazard Rating:Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4

Inhalation:
In applications where vapors (caused by high temperature) or mists (caused by mixing or spraying) are created, breathing may cause a mild burning sensation

in the nose, throat and lungs. Toxic and harmful if inhaled. Hydrogen Sulfide (H2S) and other hazardous vapors may evolve and collect in the headspace of storage tanks or other enclosed vessels. Hydrogen Sulfide is an extremely flammable, toxic gas. Inhalation of vapors, mist or fumes (generated at high temperatures) may cause irritation to the nose, throat and respiratory tract.

Eye Irritation:
May cause slight irritation of the eyes. If irritation occurs, a temporary burning sensation, minor redness, swelling, and/or blurred vision may result.

Skin Contact:
Severely irritating to the skin causing pain, redness and swelling. Other adverse effects not expected from brief skin contact.

Ingestion:
This material may be harmful or fatal if swallowed. Ingestion may result in vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even
small quantities may result in aspiration pneumonitis. Generally considered to have a low order of acute oral toxicity.
Other Health Effects:
Carcinogenic in animal tests. It is probable that the material causes cancer in laboratory animals.
Material may release hydrogen sulfide (H2S), a highly toxic and extremely flammable gas, when heated to 180 Degrees F or higher. H2S can cause irritation of the eyes and respiratory tract, headache, dizziness, nausea, vomitting, diarrhea, and pulmonary edema. The odor ("rotten egg") threshold is 0.02 ppm. Do not depend on sense of smell for warning; H2S rapidly deadens the sense of smell.

Refer to Section 11, Toxicological Information, for specific information on the following effects:
Genotoxicity
Signs and Symptoms:
Irritation as noted above. Aspiration pneumonitis may be evidenced by coughing, labored breathing and cyanosis (bluish skin); in severe cases death may occur.

For additional health information, refer to section 11.

SECTION 4 FIRST AID MEASURES

Inhalation:
Vaporization of H2S that has been trapped in clothing can be dangerous to rescuers. Maintain respiratory protection to avoid contamination from victim to rescuer. Mechanical ventilation should be used to resuscitate the victim.
DO NOT attempt to rescue victim unless proper respiratory protection is worn.
If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as

required and transport to the nearest medical facility.

Skin:
Remove contaminated clothing. Flush with large amounts of water for at least 15 minutes and follow by washing with soap if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

Eye:
Flush eyes with plenty of water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling occur, transport to nearest medical facility for additional treatment.

Ingestion:
DO NOT take internally. In general no treatment is necessary unless large quantities are swallowed, however, get medical advice. Have victim rinse mouth out with water, then drink sips of water to remove taste from mouth. If
vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Note to Physician:
If more than 2.0ml/kg body weight has been ingested and vomiting has not occurred, emesis should be induced with supervision. Keep victim's head below
hips to prevent aspiration. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage using a cuffed endotracheal tube should be considered.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point [Method]: >125 °F/>51.67 °C [Closed Cup]
Autoignition Temperature: 500 °F/260 °C
Flammability in Air: 0.5 - 4.4 %volume

Extinguishing Media:
Material will float and can be re-ignited on surface of water. Use water fog,
'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do
not use a direct stream of water.

Fire Fighting Instructions:
CAUTION! COMBUSTIBLE. Clear fire area of all non-emergency personnel. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure,
NIOSH approved, self-contained breathing apparatus. Cool surrounding equipment, fire-exposed containers and structures with water. Container areas
exposed to direct flame contact should be cooled with large quantities of water (500 gallons water per minute flame impingement exposure) to prevent weakening of container structure.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures:
CAUTION! COMBUSTIBLE. Eliminate potential sources of ignition. Handling equipment must be bonded and grounded to prevent sparking.

Wear appropriate personal protective equipment when cleaning up spills. Refer
to Section 8.

Spill Management:
Shut off source of leak if safe to do so. Dike and contain spill.

FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

Reporting:
U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity to the National Response Center at (800)424-8802.
CWA: This product is an oil as defined under Section 311 of EPA's Clean Water Act (CWA). Spills into or leading to surface waters that cause a sheen must be
reported to the National Response Center, 1-800-424-8802.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures:
CAUTION! COMBUSTIBLE. Do not breathe material. Keep container closed. Use only with adequate ventilation. Avoid heat, open flames, including pilot lights, and strong oxidizing agents. Use explosion-proof ventilation to prevent vapor accumulation. Ground all handling equipment to prevent sparking. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Material may release hydrogen sulfide (H2S), a highly toxic and extremely flammable gas, when heated to 180 Degrees F or higher. H2S may collect in the
headspace of the container.

Handling:
Surfaces that are sufficiently hot may ignite liquid material.

Storage:

Keep liquid and vapor away from heat, sparks and flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors have dissipated. Use explosion-proof ventilation indoors and in laboratory settings.

Container Warnings:
Keep containers closed when not in use. Containers, even those that have been
emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Benzene ACGIH TLV TWA: 0.5 ppmv STEL: 2.5 ppmv Notation: Skin
Benzene OSHA PEL TWA: 1 ppmv STEL: 5 ppmv
Diesel Fuel, as total hydrocarbons ACGIH TLV TWA: 100 mg/m3
Carbon dioxide ACGIH - TLV TWA: 5000 ppmm STEL: 30000 ppmm
Carbon dioxide OSHA - PEL STEL: 30000 ppmm
Carbon dioxide OSHA - PEL_IS TWA: 10000 ppmm
Carbon monoxide OSHA - PEL TWA: 35 ppmv Ceiling: 200 ppmv
Carbon monoxide Combustion

EXPOSURE CONTROLS
Adequate explosion-proof ventilation to control airborne concentrations.

PERSONAL PROTECTION
Personal protective equipment (PPE) selections vary based on potential exposure conditions such as handling practices, concentration and ventilation.
Information on the selection of eye, skin and respiratory protection for use with this material is provided below.

Eye Protection:
Chemical Goggles - If liquid contact is likely., or Safety glasses with side shields

Skin Protection:
Use protective clothing which is chemically resistant to this material. Selection of protective clothing depends on potential exposure conditions and may include gloves, boots, suits and other items. The selection(s) should take into account such factors as job task, type of exposure and durability requirements.

Published literature, test data and/or glove and clothing manufacturers indicate the best protection is provided by:
Neoprene, or Nitrile Rubber

Respiratory Protection:
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, an approved respirator must be worn. Respirator selection, use and maintenance should be in accordance with

the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Types of respirator(s) to be considered in the selection process include: Supplied-Air Respirator. Air-Purifying Respirator for Organic Vapors. Self-contained breathing apparatus for use in environments with unknown concentrations or emergency situations.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Bright and clear liquid (Tax Exempt Diesels - pale red liquid). Oil-type odor.
Substance Chemical Family: Petroleum Hydrocarbon, Fuel Oil
Appearance: Bright and clear liquid (Tax Exempt Diesels - pale red liquid).

Auto Ignition Temperature: 500 °F

Flammability in Air: 0.5 - 4.4 %volume

Flash Point: > 125 °F [Closed Cup]

Specific Gravity: 0.85 Typical

Stability: Stable

Vapor Pressure: 0.02 mmHg Typical [Calculated]

Viscosity: 1.9 - 4.1 cSt @ 40 °C

SECTION 10 REACTIVITY AND STABILITY

Stability:
Material is stable under normal conditions.

Conditions to Avoid:
Avoid heat and open flames.

Materials to Avoid:
Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products:
Thermal decomposition products are highly dependent on combustion conditions.
A complex mixture of airborne solids, liquids and gases will evolve when this material undergoes pyrolysis or combustion. Aldehydes, Carbon Monoxide, Carbon Dioxide, Ketones
and other unidentified organic compounds may be formed upon combustion.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

Dermal LD50 > 5 ml/kg(Rabbit) OSHA: Non-Toxic Based on similar material(s)

Eye Irritation Non-Irritating [Rabbit] OSHA: Non-Irritating Based on similar material(s)

Oral LD50 9 ml/kg(Rat) OSHA: Non-Toxic Based on similar material(s)

Skin Irritation Draize Extremely irritating [Rabbit] OSHA: Irritating Based on similar material(s)

Carcinogenicity Classification

#2 Diesel

NTP: No IARC: No ACGIH: No OSHA: No

Benzene

NTP: Yes IARC: Carcinogen (1) ACGIH: A1 OSHA: Yes

Light Catalytic Cracked Distillate

NTP: No IARC: Possible Carcinogen (2B) ACGIH: No OSHA: No

Carcinogenicity

Related materials have caused the development of skin tumors in lifetime mouse skin painting studies. However, these tumors have a long latency period and may be associated with the repeated severe irritation caused by the test materials. Prolonged and repeated exposure to high concentrations (10s to 100s ppm) of benzene may cause serious injury to blood-forming organs and is associated with anemia (depletion of blood cells) and is linked to the later development of acute myelogenous leukemia (AML).

Genotoxicity

A closely related component (Hydrodesulfurized Middle Distillate) did not cause detectable mutations in two different in vivo (live animal) studies. Some evidence of genotoxicity was seen in separate in vitro (test tube) studies, usually in cases where the test material was metabolically activated.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Impact Summary:

There is no ecological data available for this product.

SECTION 13 DISPOSAL CONSIDERATIONS

RCRA Information:

Under RCRA, it is the responsibility of the user of the material to determine,
at the time of the disposal, whether the material meets RCRA criteria for hazardous waste. This is because material uses, transformations, mixtures, processes, etc. may affect the classification. Refer to the latest EPA, state
and local regulations regarding proper disposal.

SECTION 14 TRANSPORT INFORMATION

US Department of Transportation Classification

Proper Shipping Name: Diesel Fuel
Identification Number: NA1993
Hazard Class/Division: Combustible Liquid
Packing Group: III
Hazardous Substance/Material RQ: Benzene / 1546.2005 lbs
Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or
highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.
Emergency Response Guide # 128

International Air Transport Association

Hazard Class/Division: 3 (Flammable Liquid)
Identification Number: UN1202
Packing Group: III
Proper Shipping Name: Diesel Fuel

International Maritime Organization Classification

Hazard Class/Division: 3 (Flammable Liquid)
Identification Number: UN1202
Packing Group: III
Proper Shipping Name: Diesel Fuel

SECTION 15 REGULATORY INFORMATION

FEDERAL REGULATORY STATUS

OSHA Classification:
Product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
Comprehensive Environmental Release, Compensation & Liability Act (CERCLA):
Benzene RQ 10 lbs Reportable Spill => 10 lbs or 1 gal

Ozone Depleting Substances (40 CFR 82 Clean Air Act):

This material does not contain nor was it directly manufactured with any Class
I or Class II ozone depleting substances.

Superfund Amendment & Reauthorization Act (SARA) Title III:

SARA Extremely Hazardous Substances (302/304):
Hydrogen sulfide RQ 100 lbs Reportable Spill => 711013 lbs or 100334 gal

SARA Hazard Categories (311/312): Immediate Health:YES Delayed Health:YES
Fire:YES Pressure:NO Reactivity:NO

SARA Toxic Release Inventory (TRI) (313): Benzene

Toxic Substances Control Act (TSCA) Status:
This material is listed on the EPA/TSCA Inventory of Chemical Substances.

Other Chemical Inventories:
Australian AICS, Canadian DSL, European EINECS, Korean Inventory,

State Regulation
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also
be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65).

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

New Jersey Right-To-Know Chemical List:
Benzene (71-43-2) 0.01 - 0.64 %weight Carcinogen
Benzene (71-43-2) 0.01 - 0.64 %weight Mutagen
Light Cat Cracked Distillate 0 - 39.99 %weight Mutagen

Pennsylvania Right-To-Know Chemical List:
Benzene (71-43-2) 0.01 - 0.64 %weight Spec Haz Sub/Env Hazardous

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SECTION 16 OTHER INFORMATION

Revision#: 3
Revision Date: 04/29/2003
Revisions since last change (discussion): This Material Safety Data Sheet (MSDS) has been newly reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-1998). We encourage you to take the opportunity to read the MSDS and review the information contained therein.

SECTION 17 LABEL INFORMATION

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF
PRODUCT. THIS LABEL COMPLIES WITH THE REQUIREMENTS OF THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) FOR USE IN THE WORKPLACE. THIS LABEL
IS NOT INTENDED TO BE USED WITH PACKAGING INTENDED FOR SALE TO CONSUMERS AND MAY NOT CONFORM WITH THE REQUIREMENTS OF THE CONSUMER PRODUCT SAFETY ACT OR OTHER RELATED REGULATORY REQUIREMENTS.

PRODUCT CODE(S): 00429

GN LS Diesel 2

WARNING!

COMBUSTIBLE LIQUID! MAY BE FATAL IF INHALED. CAUSES SEVERE SKIN IRRITATION.
ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. CONTAINS BENZENE WHICH IS A CANCER HAZARD - LINKED TO DEVELOPMENT OF ACUTE MYELOGENOUS LEUKEMIA.

Refer to Section 11, Toxicological Information, for specific information on the following effects:
Genotoxicity

Precautionary Measures:
Avoid heat and open flames. Hydrogen Sulfide and other hazardous vapors may evolve and collect in the headspace of storage tanks or other enclosed vessels. Hydrogen Sulfide is an extremely flammable, toxic gas. Respiratory protection should be worn when venting tanks. Avoid breathing of vapors, fumes, or mist. Do not take internally. Use only with adequate ventilation.
Avoid contact with eyes, skin and clothing. Keep container closed when not in
use. Wash thoroughly after handling.

FIRST AID

Inhalation: DO NOT attempt to rescue victim unless proper respiratory protection is worn. Vaporization of H2S that has been trapped in clothing can
be dangerous to rescuers. Maintain respiratory protection to avoid contamination from victim to rescuer. Mechanical ventilation should be used to resuscitate the victim. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.
Skin Contact: Remove contaminated clothing. Flush with large amounts of water for at least 15 minutes and follow by washing with soap if available. If redness, swelling, pain and/or blisters occur, transport to the nearest

medical facility for additional treatment.
Eye Contact: Flush eyes with plenty of water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling occur, transport to nearest medical facility for additional treatment.
Ingestion: DO NOT take internally. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Have victim rinse mouth out with water, then drink sips of water to remove taste from mouth. In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

FIRE

In case of fire, Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do not use a direct stream of water. Material will float and can be re-ignited on surface of water.

SPILL OR LEAK
Dike and contain spill.
FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

CONTAINS: Full Range Straight Run Middle Distillate, 68814-87-9; Hydrotreated Middle Distillate, 64742-46-7; Light Catalytic Cracked Distillate, 64741-59-9;
Benzene, 71-43-2; Sulfur, 7704-34-9

NFPA Rating (Health, Fire, Reactivity): 2, 2, 0

TRANSPORTATION
US Department of Transportation Classification

Proper Shipping Name: Diesel Fuel
Identification Number: NA1993
Hazard Class/Division: Combustible Liquid
Packing Group: III
Hazardous Substance/Material RQ: Benzene / 1546.2005 lbs
Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or
highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.
Emergency Response Guide # 128

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65).

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Name and Address

Motiva Enterprises LLC
P.O. Box 4540
Houston, TX 77210-4540

ADMINISTRATIVE INFORMATION
MANUFACTURER ADDRESS: Motiva Enterprises LLC, P.O. Box 4540, Houston, TX. 77210-4540
Company Product Stewardship & Regulatory Compliance Contact: David Snyder
Phone Number: (281) 874-7728

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO
US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT : IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

TO DETERMINE THE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT
TO THE PRODUCT, YOU SHOULD CONSULT WITH YOUR LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. WE WILL NOT PROVIDE ADVICE ON SUCH MATTERS, OR BE RESPONSIBLE FOR ANY INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN. THE UNDERLYING DATA, AND THE INFORMATION PROVIDED HEREIN AS A RESULT OF THAT DATA,
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OR EXCHANGE WITHOUT THE EXPRESS WRITTEN CONSENT OF MOTIVA ENTERPRISES LLC.

ATTACHMENT D

PERSONAL PROTECTIVE EQUIPMENT AND RESPIRATORY PROTECTION SOPS

INSPECTION OF PERSONAL PROTECTIVE CLOTHING

[1] Determine that clothing material is correct for specified task
- a. compatibility chart
- b. chemical hazard chart in Safety Plan
- c. MSDS

[2] Visually inspect material for:
- a. imperfect seams
- b. non-uniform coatings
- c. tears
- d. discoloration/degradation
- e. malfunctioning closures

[3] Hold up to light and check for pinholes.

[4] Flex material:
- a. observe for cracks
- b. other signs of shelf deterioration

[5] If the material has been used previously, inspect inside and out for signs of chemical penetration/degradation
- a. discoloration
- b. swelling
- c. stiffness

[6] During the work task:
- a. evidence of discoloration/degradation
- b. closure failure
- c. tears
- d. punctures
- e. seam discontinuities

RESPIRATORY PROTECTION

General Guidelines

[1] All personnel required to use respirators will select and use the respirators based upon guidelines established by OSHA, NIOSH, and the ERLLC Respiratory Protection Program.

[2] All individuals required to wear respirators will have received a documented pre-issue qualitative fit test for the Survivair full-face.

[3] Each individual will be responsible for conducting a positive/negative fit check each time the respirator is donned.

[4] Each individual shall be responsible for cleaning his/her own respirator at least once daily and is permitted to leave the work area to wash his/her own respirator as needed.

[5] Cartridges or filters shall be changed after each daily use or whenever an increase in breathing resistance/odor is detected, or if they become wet. All changes will be made in uncontaminated areas.

[6] No ERLLC employee shall wear a respirator until he/she has been examined by a physician and determined to be physically able to wear respiratory protection. This examination shall be documented at the site.

[7] All personnel must be qualitatively fit test every year.

Air Purifying Respirator Inspection and Checkout

[1] Visually inspect the entire unit for any obvious damages, defects, or deteriorated rubber.

[2] Make sure the facepiece harness is not damaged.

[3] Inspect lens for damage and proper seal in facepiece.

[4] Exhalation Valve
Pull off plastic cover and check valve for debris, tears, or deformities in the neoprene valve.

[5] Inhalation Valve
Screw off cartridges/canister and visually inspect neoprene valves for tears. Make sure than inhalation valves and cartridge receptacle gaskets are in place.

[6] Insure that the speaking diaphragm retainer ring is hand tight.

[7] Make sure that you have the correct cartridge.

[8] Don and perform positive and negative pressure check.

Storage of Air Purifying Respirators

[1] OSHA requires that respirators be stored to protect against:

* Dust

* Sunlight
* Heat
* Extreme Cold
* Excessive Moisture
* Damaging Chemicals
* Mechanical Damage

[2] Respirators must be stored in a clean area which is not likely to be contaminated by the work in progress.

[3] Respirators should not be hung from their headbands for prolonged periods of time.

SCBA Inspection and Checkout

[1] Monthly Inspection

a. check cylinder label for current hydrostatic test date
b. inspect cylinder for large dent or gouges
c. inspect cylinder gauge for damage
d. complete routine inspection
e. fill out inspection documentation card

[2] Routine Inspection

a. Pre-Operational
   * high-pressure hose connector is tight on cylinder fitting
   * by-pass valve is closed
   * mainline valve is closed
   * regulator outlet is not covered or obstructed

b. Backpack and Harness Assembly
   * inspect backpack/harness straps for wear, damage, secure
   * check wear and function of belts
   * check backplate and cylinder holder for damage

c. Cylinder and High Pressure Hose Assembly
   * check cylinder to insure firmly attached to backplate
   * open cylinder valve; listen or feel for leakage around packing and hose connection
   * check high pressure hose for damage or leaks

d. Regulator
   * cover regulator outlet with palm of hand
   * open mainline valve
   * remove hand from regulator outlet
   * open by-pass valve slowly to assure proper function
   * close by-pass valve
   * open mainline valve
   * note pressure reading on regulator gauge
   * close cylinder valve while keeping hand over regulator outlet
   * slowly remove hand from outlet and allow air to flow
   * note pressure when low pressure warning alarm sounds; it should be 550-650 psi
   * close mainline valve
   * check regulator for leaks by blowing air into regulator for 5-10 seconds

* draw air from outlet for 5-10 seconds
* if a positive pressure or vacuum cannot be maintained, there is a leak.

e. Facepiece & Corrugated Breathing Hose
* inspect head harness and facepiece for damage, serrations, and deteriorated rubber
* inspect lens for damage and proper seal in facepiece
* inspect exhalation valve for damage and dirt buildup
* stretch breathing hose and carefully and inspect for holes and deterioration
* inspect connector for damage and presence of washer
* perform negative pressure test with facepiece donned

f. Storage
* refill cylinder to 2216 psi
* close cylinder valve
* tightly connect high pressure hose to cylinder
* bleed pressure from high pressure hose by opening mainline valve
* close by-pass valve
* close mainline valve
* fully extend all straps
* store facepiece in a clean plastic bag for protection

ATTACHMENT E

NIOSH Chemical Safety Data Sheets

NIOSH Publication 2005-149 September 2005

NIOSH Pocket Guide to Chemical Hazards

NPG Home | Introduction | Synonyms & Trade Names | Chemical Names | CAS Numbers | RTECS Numbers | Appendices | Search

Asbestos

CAS 1332-21-4

Hydrated mineral silicates

RTECS CI6475000

Synonyms & Trade Names
Actinolite, Actinolite asbestos, Amosite (cummingtonite-grunerite), Anthophyllite, Anthophyllite asbestos, Chrysotile, Crocidolite (Riebeckite), Tremolite, Tremolite asbestos

DOT ID & Guide
2212 171 (blue, brown)
2590 171 (white)

Exposure Limits
NIOSH REL: Ca See Appendix A See Appendix C
OSHA PEL: [1910.1001] [1926.1101] See Appendix C

IDLH Ca [N.D.] See: IDLH INDEX

Conversion

Physical Description
White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids.

MW: Varies	BP: Decomposes	MLT: 1112°F (Decomposes)	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: ?
Fl.P: NA	UEL: NA	LEL: NA	

Noncombustible Solids

Incompatibilities & Reactivities
None reported

Measurement Methods
NIOSH 7400, 7402; OSHA ID160, ID191
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: No recommendation
Change: Daily

First Aid (See procedures)
Eye: Irrigate immediately

Breathing: Fresh air

Respirator Recommendations (See Appendix E) NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Asbestosis (chronic exposure): dyspnea (breathing difficulty), interstitial fibrosis, restricted pulmonary function, finger clubbing; irritation eyes; [potential occupational carcinogen]

Target Organs respiratory system, eyes

Cancer Site [lung cancer]

See also: INTRODUCTION See MEDICAL TESTS: 0019

Arsenic (inorganic compounds, as As)

CAS 7440-38-2 (metal)

As (metal)

RTECS CG0525000

Synonyms & Trade Names
Arsenic metal: Arsenia
Other synonyms vary depending upon the specific As compound. [Note: OSHA considers "Inorganic Arsenic" to mean copper acetoarsenite & all inorganic compounds containing arsenic except ARSINE.]

DOT ID & Guide
1558 152 (metal)
1562 152 (dust)

Exposure Limits

NIOSH REL: Ca C 0.002 mg/m^3 [15-minute] See Appendix A

OSHA PEL: [1910.1018] TWA 0.010 mg/m^3

IDLH Ca [5 mg/m^3 (as As)] See: 7440382

Conversion

Physical Description Metal: Silver-gray or tin-white, brittle, odorless solid.

MW: 74.9	BP: Sublimes	MLT: 1135°F (Sublimes)	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 5.73 (metal)
Fl.P: NA	UEL: NA	LEL: NA	

Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame.

Incompatibilities & Reactivities: Strong oxidizers, bromine azide [Note: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]

Measurement Methods: NIOSH 7300, 7301, 7303, 7900, 9102; OSHA ID105
See: NMAM or OSHA Methods

Personal Protection & Sanitation
(See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated/Daily
Remove: When wet or contaminated
Change: Daily
Provide: Eyewash, Quick drench

First Aid
(See procedures)
Eye: Irrigate immediately
Skin: Soap wash immediately
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations
(See Appendix E) NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister having an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes: inhalation, skin absorption, skin and/or eye contact ingestion

Symptoms: Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, [potential occupational carcinogen]

Target Organs: Liver, kidneys, skin, lungs, lymphatic system
Cancer Site: [lung & lymphatic cancer]

NIOSH Publication 2005-149 September 2005

NIOSH Pocket Guide to Chemical Hazards

NPG Home | Introduction | Synonyms & Trade Names | Chemical Names | CAS Numbers | RTECS Numbers | Appendices | Search

Cadmium dust (as Cd)

CAS 7440-43-9 (metal)

Cd (metal)

RTECS EU9800000 (metal)

Synonyms & Trade Names
Cadmium metal: Cadmium
Other synonyms vary depending upon the specific cadmium compound.

DOT ID & Guide
2570 154 (cadmium compound)

Exposure Limits

NIOSH REL*: Ca See Appendix A [*Note: The REL applies to all Cadmium compounds (as Cd).]

OSHA PEL*: [1910.1027] TWA 0.005 mg/m^3 [*Note: The PEL applies to all Cadmium compounds (as Cd).]

IDLH Ca [9 mg/m^3 (as Cd)] See: IDLH INDEX

Conversion

Physical Description
Metal: Silver-white, blue-tinged lustrous, odorless solid.

MW: 112.4	BP: 1409°F	MLT: 610°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 8.65 (metal)
Fl.P: NA	UEL: NA	LEL: NA	

Metal: Noncombustible Solid in bulk form, but will burn in powder form.

Incompatibilities & Reactivities
Strong oxidizers; elemental sulfur, selenium & tellurium

Measurement Methods
NIOSH 7048, 7300, 7301, 7303, 9102; OSHA ID121, ID125G, ID189, ID206
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection codes)
Skin: No recommendation
Eyes: No recommendation
Wash skin: Daily
Remove: No recommendation
Change: Daily

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations (See Appendix E) NIOSH
At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, ingestion

Symptoms Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]

Target Organs respiratory system, kidneys, prostate, blood

Cancer Site [prostatic & lung cancer]

See also: INTRODUCTION See ICSC CARD: 0020 See MEDICAL TESTS: 0035

Lead	**CAS** 7439-92-1
Pb	**RTECS** OF7525000
Synonyms & Trade Names Lead metal, Plumbum	**DOT ID & Guide**

Exposure Limits	NIOSH REL*: TWA 0.050 mg/m^3 See Appendix C [*Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.]
	OSHA PEL*: [1910.1025] TWA 0.050 mg/m^3 See Appendix C [*Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.]

IDLH 100 mg/m^3 (as Pb)	**Conversion**

Physical Description: A heavy, ductile, soft, gray solid.

MW: 207.2	BP: 3164°F	MLT: 621°F	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 11.34
Fl.P: NA	UEL: NA	LEL: NA	

Noncombustible Solid in bulk form.

Incompatibilities & Reactivities: Strong oxidizers, hydrogen peroxide, acids

Measurement Methods: NIOSH 7082, 7105, 7300, 7301, 7303, 7700, 7701, 7702, 9100, 9102, 9105; OSHA ID121, ID125G, ID206 See: NMAM or OSHA Methods

Personal Protection & Sanitation
(See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contaminated
Change: Daily

First Aid
(See procedures)
Eye: Irrigate immediately
Skin: Soap flush promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations

Up to 0.5 mg/m^3:
(APF = 10) Any air-purifying respirator with an N100, R100, or P100 filter (including N100, R100, and P100 filtering facepieces) except quarter-mask respirators. Click here for information on selection of N, R, or P filters.
(APF = 10) Any supplied-air respirator

Up to 1.25 mg/m^3:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode
(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter

Up to 2.5 mg/m^3:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters.
(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode
(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Up to 50 mg/m^3:
(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Up to 100 mg/m^3:
(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other

positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypotension

Target Organs Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

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NIOSH Pocket Guide to Chemical Hazards

NPG Home | Introduction | Synonyms & Trade Names | Chemical Names | CAS Numbers | RTECS Numbers | Appendices | Search

Zinc oxide

CAS 1314-13-2

ZnO

RTECS ZH4810000

Synonyms & Trade Names
Zinc peroxide

DOT ID & Guide
1516 143

Exposure Limits

NIOSH REL: Dust: TWA 5 mg/m^3 C 15 mg/m^3
Fume: TWA 5 mg/m^3 ST 10 mg/m^3

OSHA PEL†: TWA 5 mg/m^3 (fume) TWA 15 mg/m^3 (total dust) TWA 5 mg/m^3 (resp dust)

IDLH 500 mg/m^3 See: 1314132

Conversion

Physical Description
White, odorless solid.

MW: 81.4	BP: ?	MLT: 3587°F	Sol(64°F): 0.0004%
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: 5.61
Fl.P: NA	UEL: NA	LEL: NA	

Noncombustible Solid

Incompatibilities & Reactivities
Chlorinated rubber (at 419°F), water [Note: Slowly decomposed by water.]

Measurement Methods
NIOSH 7303, 7502; OSHA ID121, ID143
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection codes)
Skin: No recommendation
Eyes: No recommendation
Wash skin: No recommendation
Remove: No recommendation
Change: No recommendation

First Aid (See procedures)

Breathing: Respiratory support

Respirator Recommendations NIOSH/OSHA

Up to 50 mg/m^3:
(APF = 10) Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100, P100. Click here for information on selection of N, R, or P filters.
(APF = 10) Any supplied-air respirator

Up to 125 mg/m^3:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode
(APF = 25) Any powered air-purifying respirator with a high-efficiency particulate filter.

Up to 250 mg/m^3:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters.
(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode
(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Up to 500 mg/m^3:
(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter. Click here for information on selection of N, R, or P filters./Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation

Symptoms Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function

Target Organs respiratory system

See also: INTRODUCTION See ICSC CARD: 0208 See MEDICAL TESTS: 0246

ATTACHMENT Z

SITE SAFETY PLAN

ACKNOWLEDGEMENT FORM

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SITE-SPECIFIC TRAINING RECORD

This is to advise that Mitchell Hunt (Instructor's name) conducted a Site-Specific Training course for Environmental Restoration (Company Name) at the M&H Zinc (TO #, Project Name) project on _____ (Date).

The total duration of the instructions was_____hours.

Instruction covered the topics checked off below:

- Site Location, Description and History ☐
- Potential site hazards (chemical, physical, and biological) ☐
- Chemical, physical, and toxicological properties of site contaminants ☐
- Safe work practices ☐
- Training requirements ☐
- Medical Surveillance ☐
- Control Zones ☐
- Monitoring ☐
- Selection, use, and limitation, of personal protective equipment ☐
- Personnel and equipment decontamination ☐
- Emergency response procedures ☐
- Hazard communication ☐
- Blood borne pathogen briefing ☐

The following participant attended the training course for the full duration indicated above.

_____ Name (Print)

_____ Signature

Hol	Theren H[illegible]		1/09
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